

FIG. 1



Phylogenetic tree showing the relationships between various HAS domains. The tree is rooted on the left and branches to the right. The domains are: seHAS, spHAS, muHAS2, huHAS2, muHAS3, muHAS1, huHAS1, and xlHAS. Bootstrap values are indicated at the nodes: 67.2% for the seHAS/spHAS node, 98.7% for the muHAS2/huHAS2 node, 58.0% for the muHAS3 node, 94.1% for the muHAS1/huHAS1 node, 46.6% for the muHAS1/huHAS1 node, 40.9% for the muHAS3 node, and 10.7% for the seHAS/spHAS node.

Domain	Bootstrap Value (%)
seHAS	67.2
spHAS	67.2
muHAS2	98.7
huHAS2	98.7
muHAS3	58.0
muHAS1	94.1
huHAS1	94.1
xlHAS	46.6
seHAS/spHAS	10.7

FIG. 3

SIZE DISTRIBUTION OF HYALURONAN  
PRODUCED BY DIFFERENT ENGINEERED  
STREPTOCOCCAL HAS ENZYMES

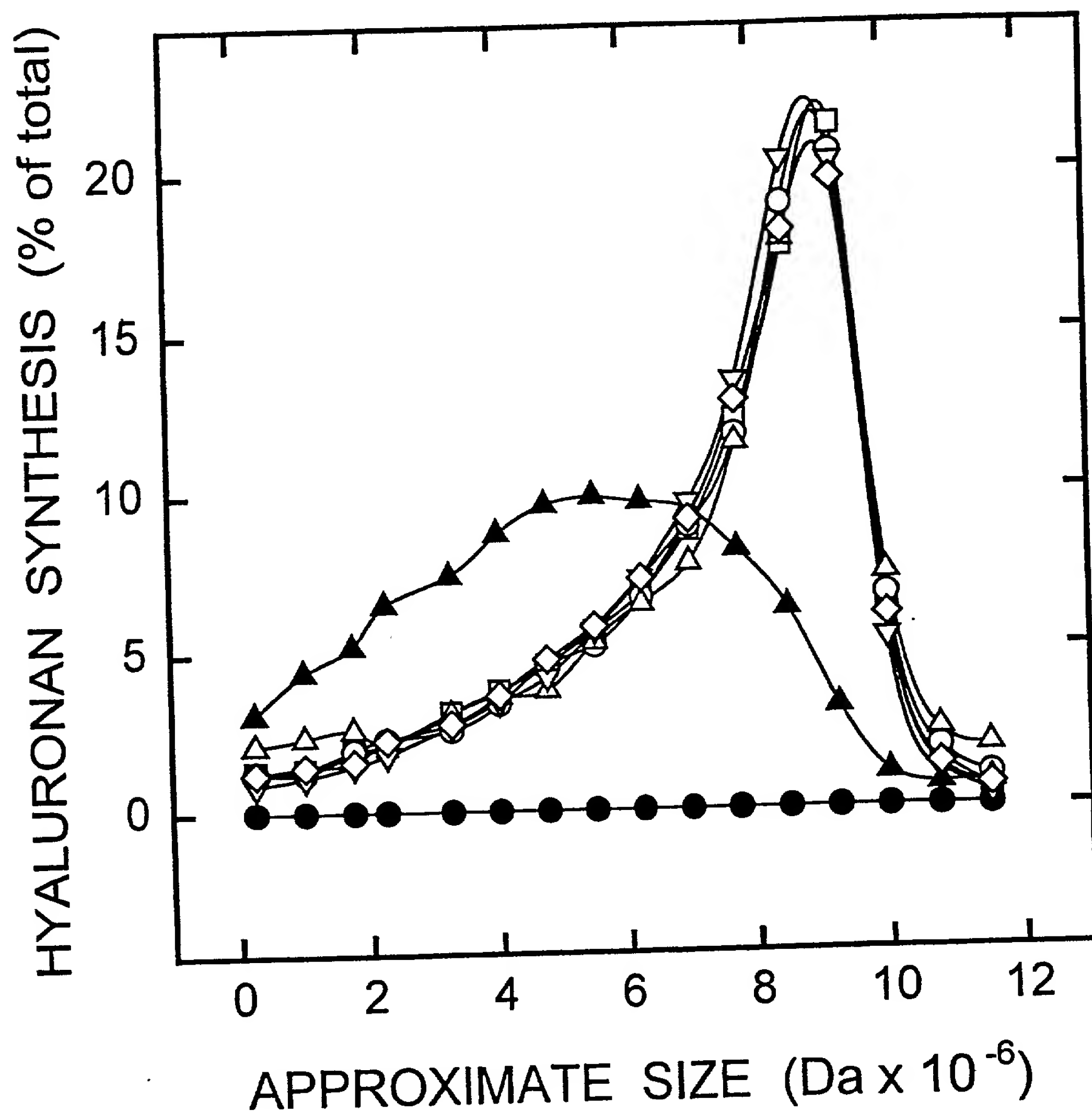


FIG. 4

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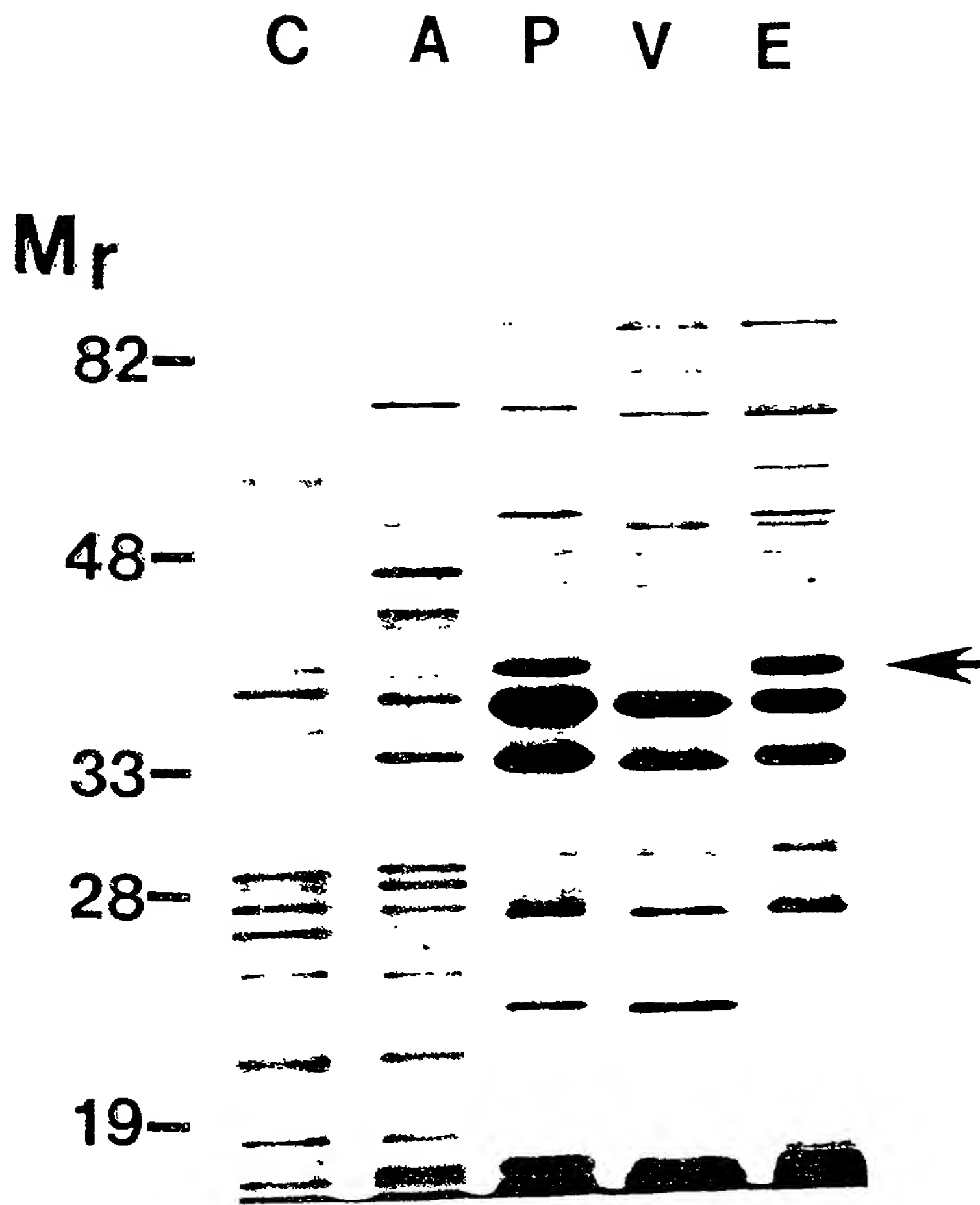


FIG. 5

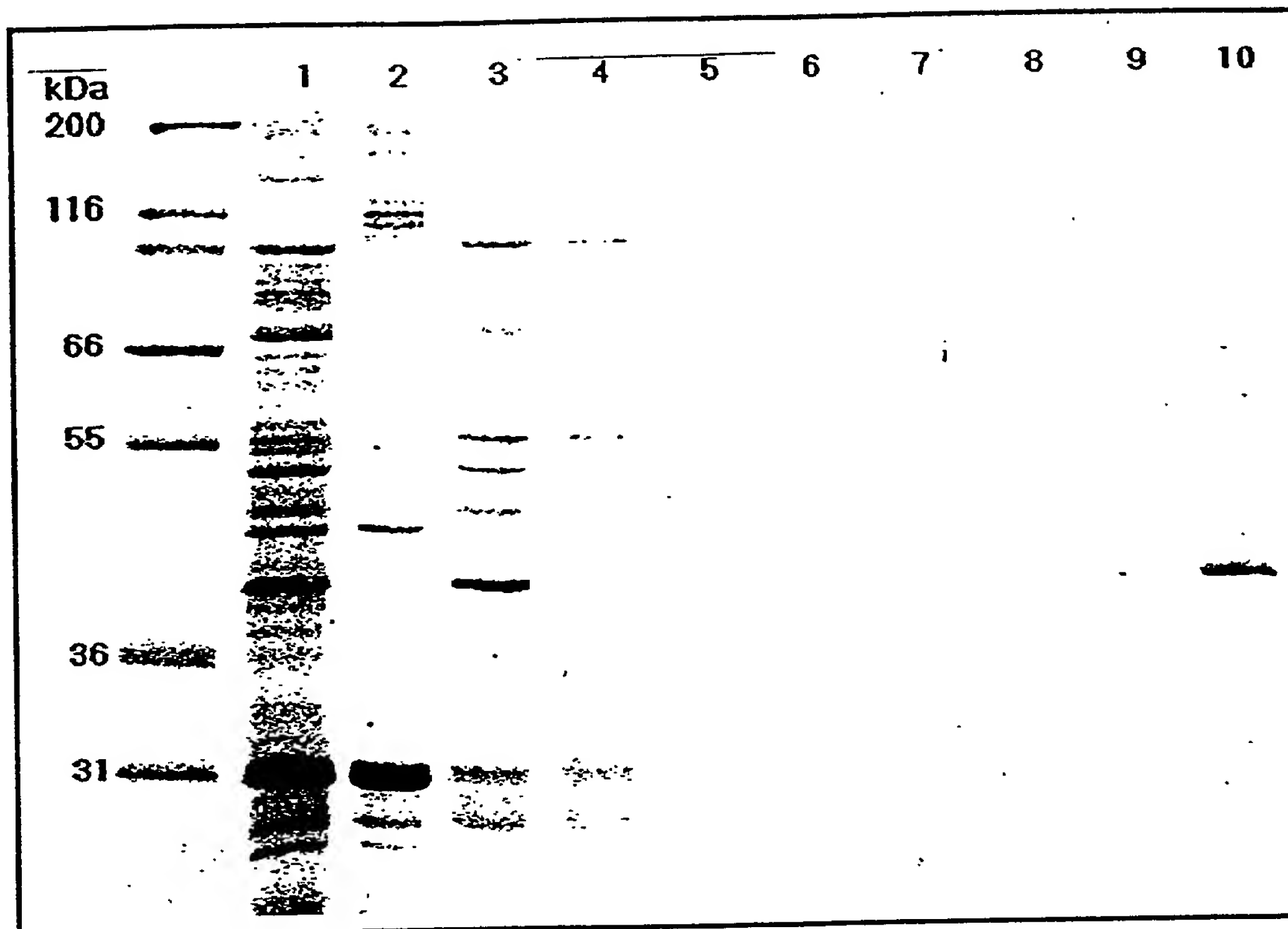


FIG. 6

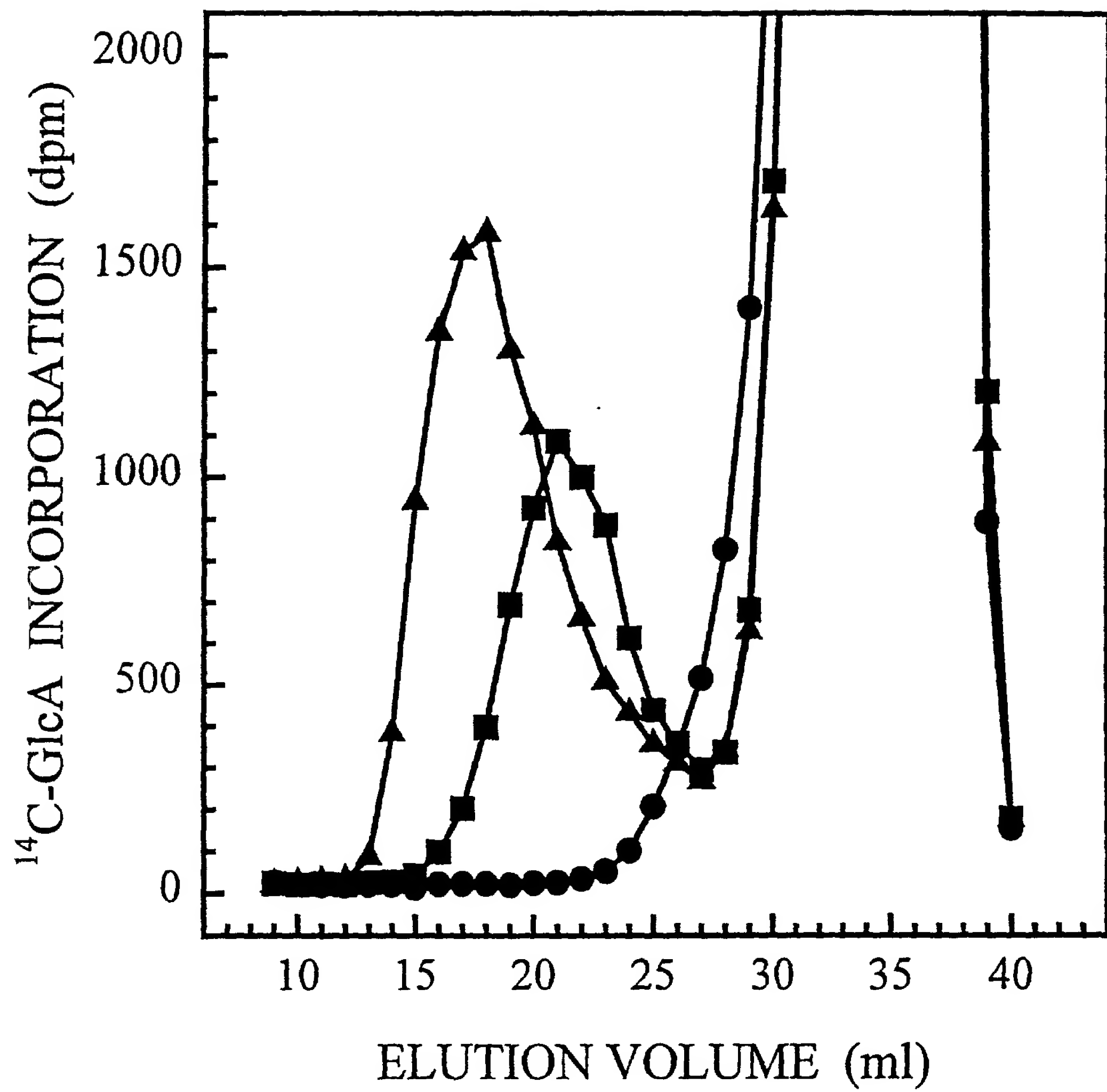


FIG. 7

1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24
25	25	25
26	26	26
27	27	27
28	28	28
29	29	29
30	30	30
31	31	31
32	32	32
33	33	33
34	34	34
35	35	35
36	36	36
37	37	37
38	38	38
39	39	39
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41	41	41
42	42	42
43	43	43
44	44	44
45	45	45
46	46	46
47	47	47
48	48	48
49	49	49
50	50	50
51	51	51
52	52	52
53	53	53
54	54	54
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58	58	58
59	59	59
60	60	60
61	61	61
62	62	62
63	63	63
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65	65	65
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69	69	69
70	70	70
71	71	71
72	72	72
73	73	73
74	74	74
75	75	75
76	76	76
77	77	77
78	78	78
79	79	79
80	80	80
81	81	81
82	82	82
83	83	83
84	84	84
85	85	85
86	86	86
87	87	87
88	88	88
89	89	89
90	90	90
91	91	91
92	92	92
93	93	93
94	94	94
95	95	95
96	96	96
97	97	97
98	98	98
99	99	99
100	100	100

Glu147-Thr161

C-terminus

Pan HAS

Central Domain

Mr

1 2 3 4 5 6 7 8 9 10

82-

48—

33 —

28 —

19-

C E P A E P E P E P

FIG. 8



HYALURONAN SYNTHESIS (% of total  $^{14}\text{C}$ -incorporation into HA)

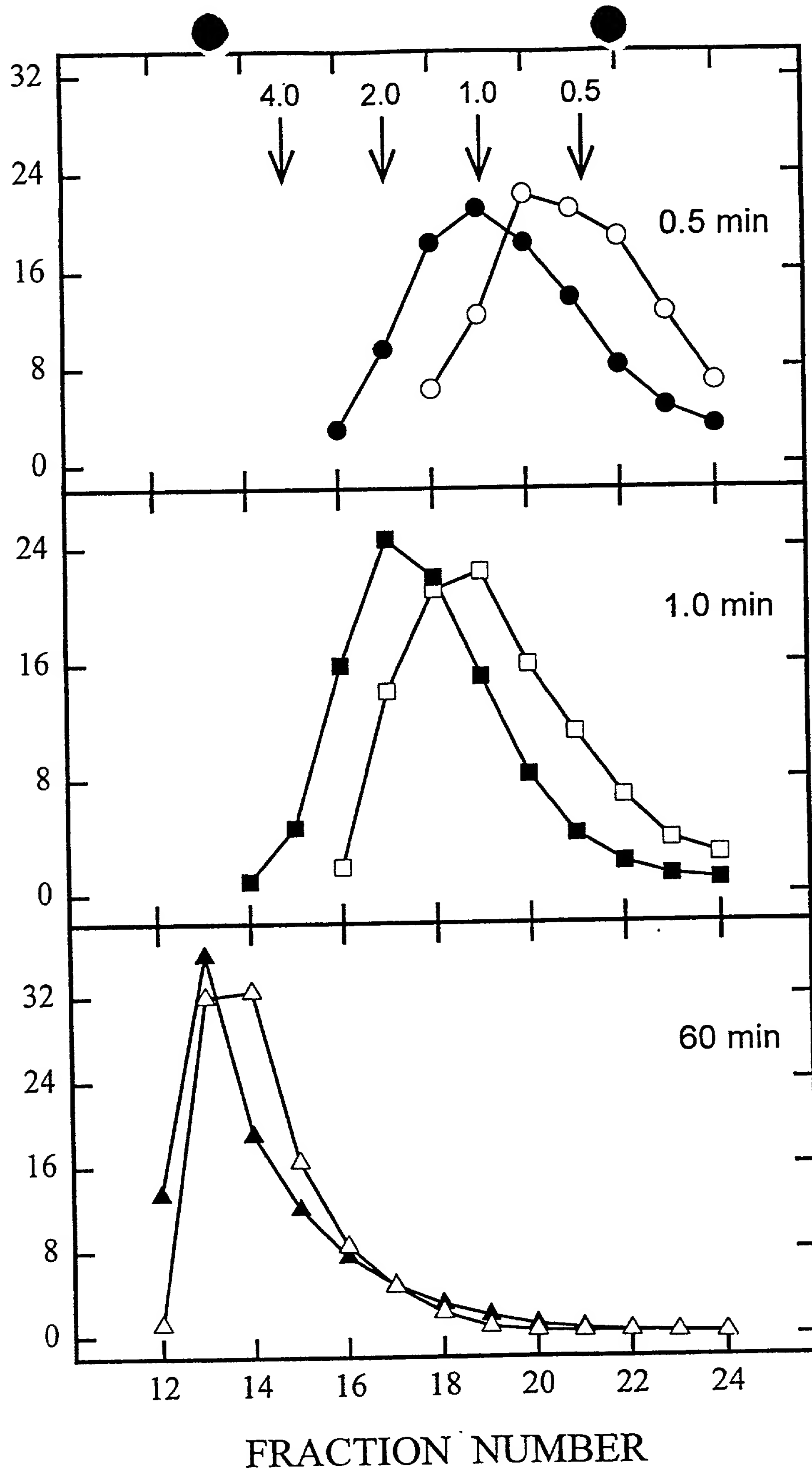


FIG. 9

76230" 5554250  
HYDROPHILICITY

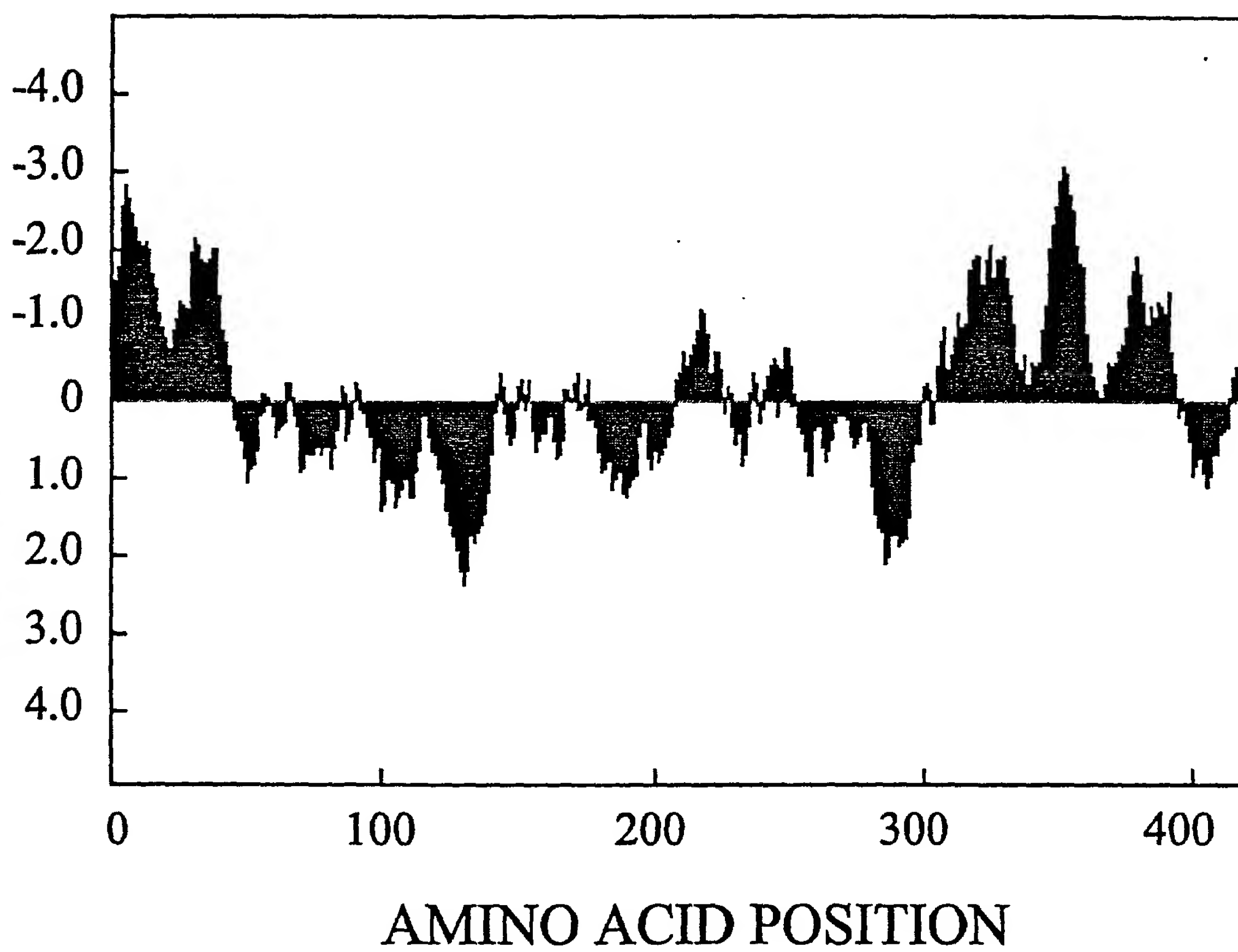


FIG. 10

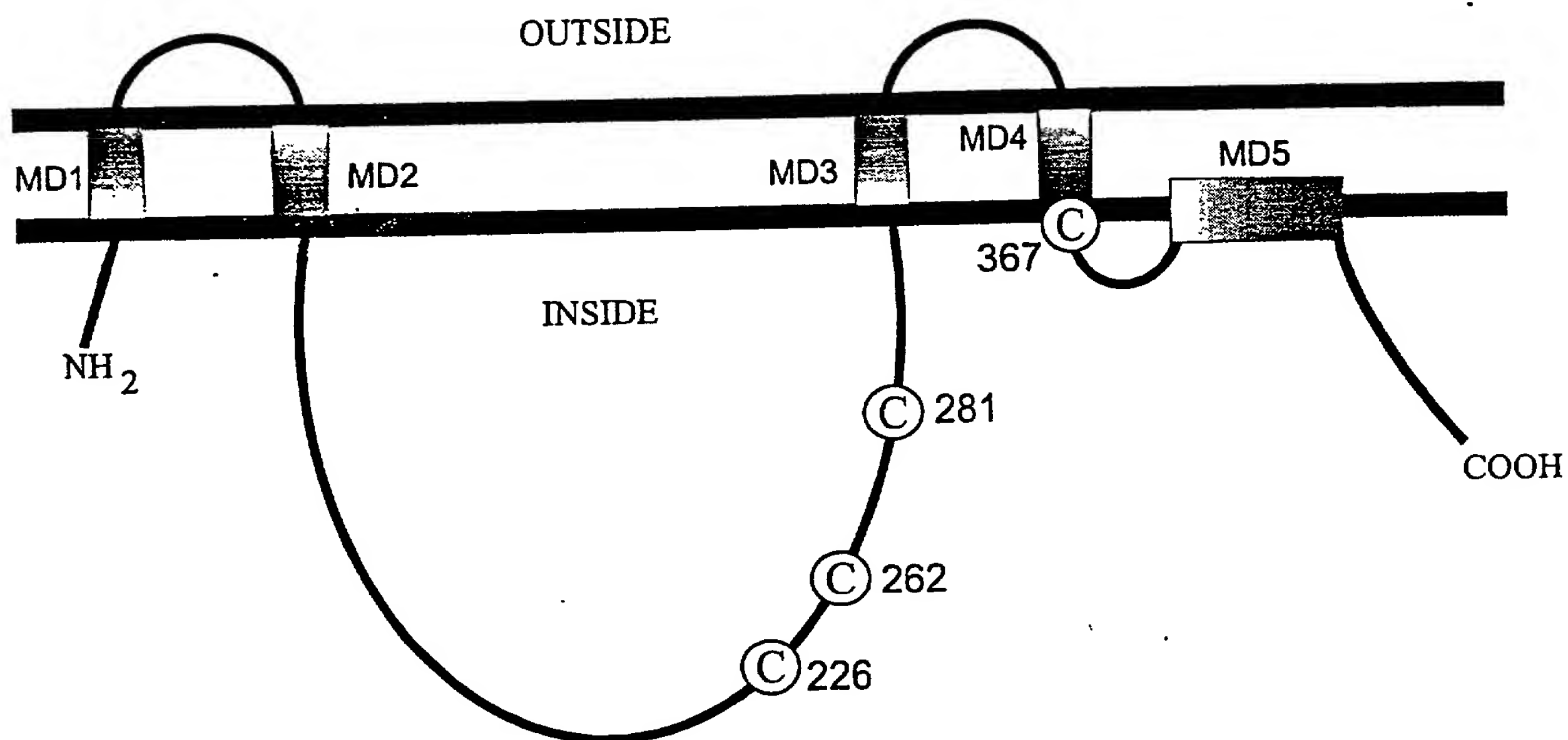


FIG. 11

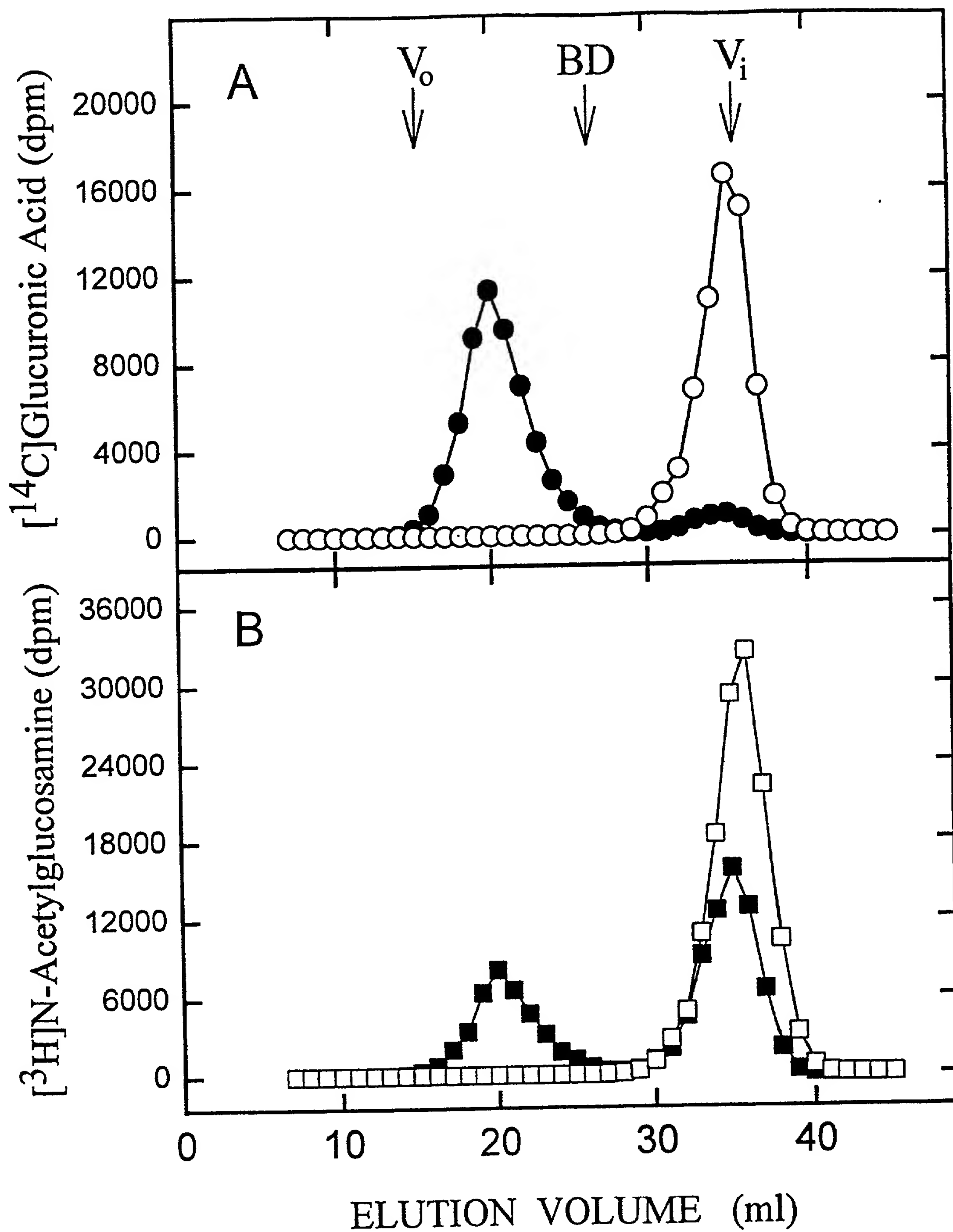


FIG. 12

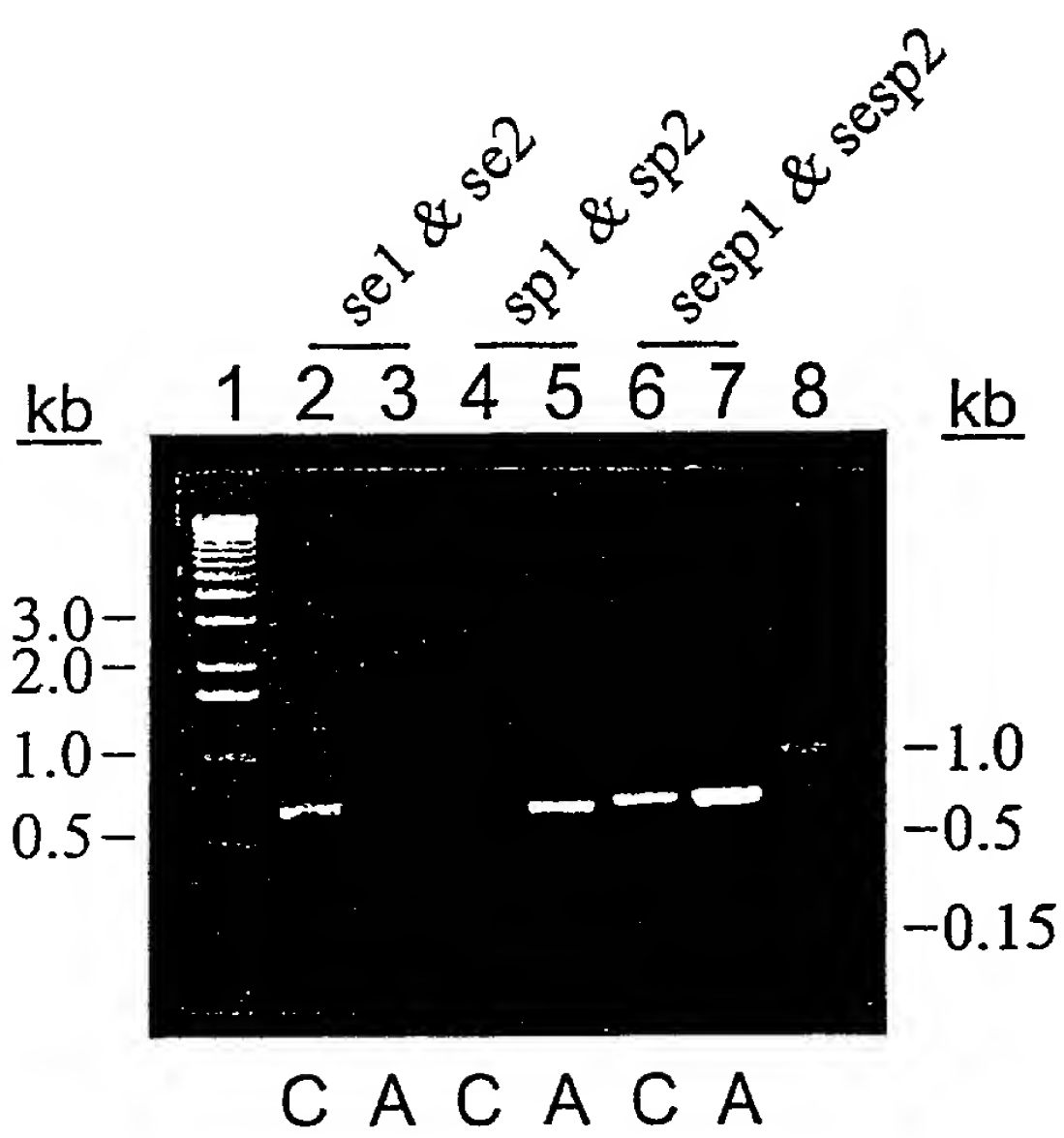


FIG. 13